



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,330	10/17/2000	Hironori Kikkawa	NEC 00FN054	3479

7590

09/11/2002

Hayes Soloway Hennessey Grossman & Hage PC  
175 Canal Street  
Manchester, NH 03101-2335

EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

A2

**Office Action Summary**

Application No.

09/690,330

Applicant(s)

KIKKAWA ET AL.

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-19 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-15 and 18 is/are rejected.
- 7) ☒ Claim(s) 16,17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's arguments with respect to claims 1-8 which have been rewritten as new claims 12-19 have been considered but are moot in view of the new ground (s) of rejection. With respect to the Mizobata's reference, Applicant argued that Mizobata does not teach or suggest the solution of the present invention to shorten the optical path length from the origin of scattering to the color layers and that Mizobata shows a structure which has a color filter provided on the opposing substrate and is quite different from the structure of the present invention. The Examiner disagrees with the Applicant's remarks because Mizobata's structure can be either for a monochrome reflective LCD apparatus or for a color reflective LCD apparatus (col. 5, lines 64-67 and col. 6, lines 1-2) and also, as shown in Fig. 4, Mizobata shows an opposite substrate having a similar structure as the present invention. Accordingly, Applicant's Prior Art Fig. 2, which discloses a color filter provided on the driving element formation substrate, in combination with Mizobata's reference, which discloses a light scattering mechanism provided on the liquid crystal side surface of the opposite substrate, would teach or suggest the same solution of the present invention to shorten the optical path length from the origin of scattering to the color layers.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art Fig. 2 in view of Mizobata et al. (USPN 5,724,111).

As shown in Fig. 2, Applicant's Prior Art discloses a reflection-type color liquid crystal display apparatus comprising:

- a liquid crystal driving element formation substrate 101 on which a liquid crystal driving element is formed;

- an opposite substrate 102 which is opposite to said liquid crystal driving element formation substrate;

- a liquid crystal 103 sandwiched between said liquid crystal driving element formation substrate and said opposite substrate;

- a color filter 113 provided on the driving element formation substrate; and

- a light scattering mechanism 125 provided at the top surface of the opposite substrate, wherein said opposite substrate has a transparent insulation substrate 121.

Applicant's Prior Art Fig. 2 discloses a reflection-type color liquid crystal display apparatus that is basically the same as that recited in claims 12-14 except that the light scattering mechanism is not provided at the liquid crystal side surface of the opposite substrate. As shown in Fig. 4, Mizobata discloses a reflection-type color liquid crystal display apparatus having a light scattering mechanism which is provided at the liquid crystal side surface of an opposite substrate and comprises an uneven portion formed at the surface of the liquid crystal side of a transparent insulation substrate 2 of the opposite substrate and a flattened film 11 (polyimide planarizing film) formed to cover

the uneven portion formed at the surface of the transparent insulation substrate. With respect to claims 15 and 18, the light scattering mechanism comprises an uneven insulation film 11 and a flattened film 9 formed to cover the uneven insulation film.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the reflection-type color liquid crystal display apparatus of Applicant's Prior Art with the teaching of Mizobata by forming a light scattering mechanism comprising an uneven portion and a flattened film at the liquid crystal side surface of the opposite substrate so as to obtain a high image quality and a high brightness with neither a fuzziness of displayed characters nor a double image.

***Allowable Subject Matter***

Claims 16, 17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

In addition to other elements as shown, none of the prior art of record suggests or discloses alone or in combination that a light scattering mechanism comprises an uneven insulation film formed on the surface of the liquid crystal side of a transparent insulation substrate; a scattering auxiliary film formed on the uneven insulation film and having a refractive index different from that of the uneven insulation, and said refractive index of the uneven insulation film is larger than that of the scattering auxiliary film; and a flattened and scattering auxiliary film to cover the uneven insulation film.


The most revelant references, USPN 5,724,111 of Mizobata et al. and Applicant's Prior Art Fig. 2, fail to disclose or suggest that light scattering mechanism. The Mizobata's reference only discloses a light scattering mechanism comprising an uneven insulation film formed on the surface of the liquid crystal side of a transparent insulation substrate and a flattened film, which is not a flattened and scattered auxiliary film, formed to cover the uneven insulation film. Meanwhile, Applicant's Prior Art only discloses a reflection-type color LCD apparatus comprising a light scattering mechanism formed at the top surface of an opposite substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

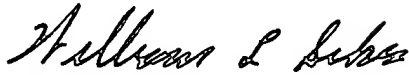
### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

Thoi Duong 

09/03/2002

  
William L. Sikes  
Supervisory Patent Examiner  
Technology Center 2800